Updated Macroeconomic Analysis of Climate Strategies Using E-DRAM

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Environmental Revenue Dynamic Assessment Model (E-DRAM)

- E-DRAM is a computable general equilibrium (CGE) model of the California economy.
- E-DRAM was developed by Professor Peter Berck of the University of California, Berkeley in collaboration with the Department of Finance and the Air Resources Board.
- E-DRAM has been peer reviewed and the model code and data available for public use.

Previous Uses of E-DRAM

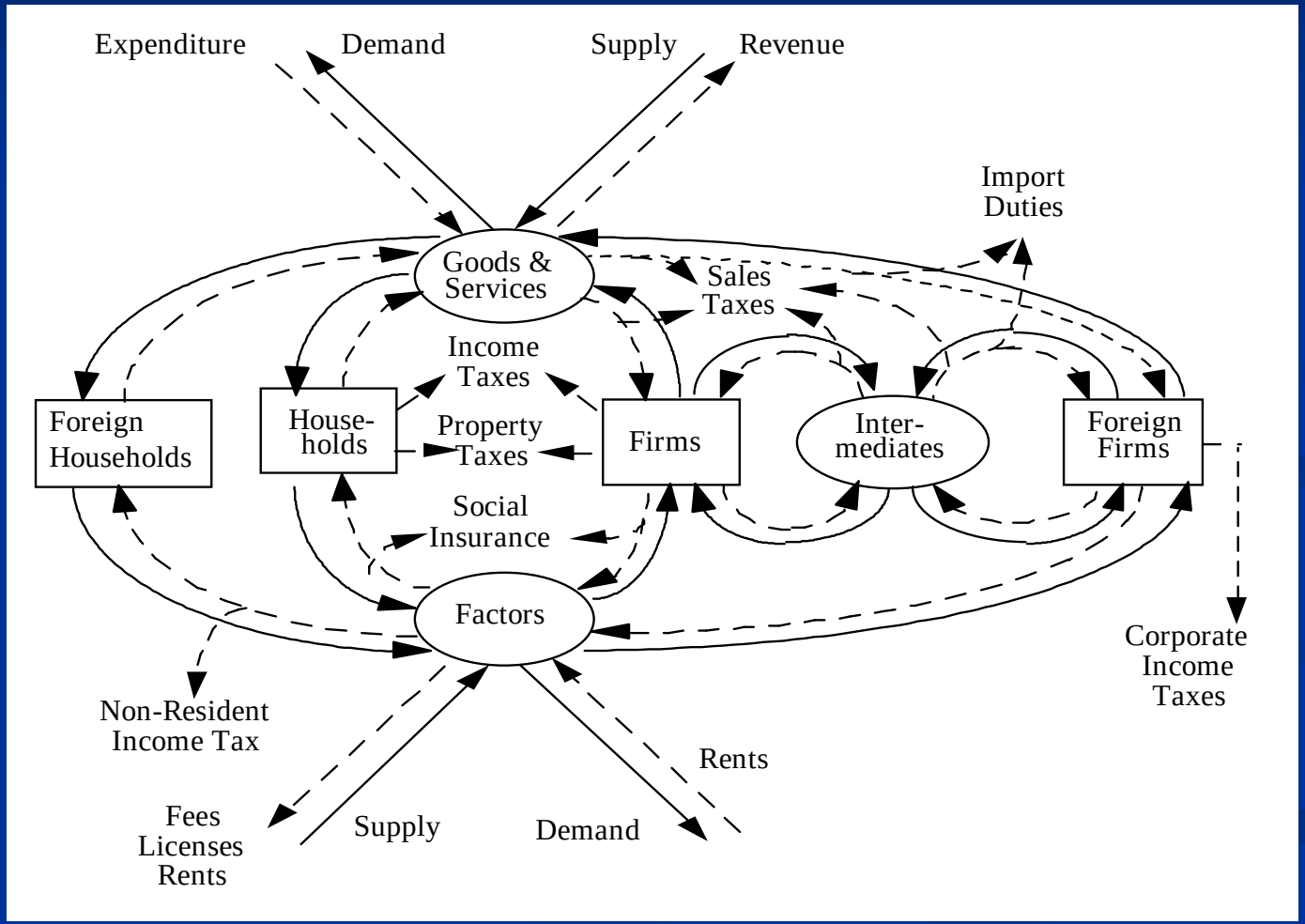
- March 2006 Climate Action Team Report
- CEC and ARB analysis of reducing petroleum dependency (AB 2076)
- ARB analysis of vehicle climate change standards (AB 1493)
- ARB State Implementation Plan analysis

General Equilibrium Models

- A CGE model solves for the prices of goods and services and factors of production that make quantity demanded and supplied equal.

- Equilibrium results in the conservation of both product and value.

Representation of the Circular Flow of Goods and Services in E-DRAM



Structure of E-DRAM

- 188 distinct sectors:
  - 120 industrial sectors,
  - two factor sectors (labor and capital),
  - 10 household sectors,
  - 9 consumption sectors,
  - one investment sector,
  - 45 government sectors, and
  - one sector that represents the rest of the world.

Climate Strategies

- Updated Climate Strategies from the 2006 CAT Report achieve a reduction of approximately 130 MMTCO2e.
- The Cap-and-trade program contributes to the 2020 emission target being achieved: an additional reduction of approximately 44 MMTCO2e.
- All Climate Strategies have costs of implementation and many have savings that result from decreased energy use.
- Costs and savings are apportioned to the sectors that are affected by the strategies.

Economic Impacts

Impact Indicator	Output	Income	Employment	Allowance Price
	Percent Change from Baseline			
Scenario 1	0.2%	0.9%	0.3%	$21
Offset Scenarios				
Scenario 2	0.4%	0.9%	0.4%	$13
Scenario 3 and 4	0.2%	0.9%	0.3%	$21
Climate Strategy				
Scenario 7	-1.0%	0.5%	-0.3%	$45
Energy Price				
Scenario 3*	0.3%	0.8%	0.3%	$17

Modeling Conclusions

- The estimated changes in the California economy resulting from these policies are small and on the whole positive.
- Some individual sectors will experience significant adjustment challenges.
- Additional analyses can contribute to identifying policy options that maximize benefits and equitably share costs.

Further Modeling Efforts

- This analysis is exploratory and significant work remains to be performed to support the ARB Scoping Plan.
- The CPUC and ARB are developing improved analytical tools that will be used to support the Scoping Plan.